IN THE CLAIMS:

Claims 5, 7-12, 14-48, 51-53, 61, 70-90, 92, 95, 96, 105 and 113 were previously cancelled. Claims 49 and 109 have been amended herein. All of the pending claims are presented below. This listing of claims will replace all prior versions and listings of claims in the application. Please enter these claims as amended.

1. (Previously presented) A sleeve element for sealing between a piston element surface and a bore surface disposed thereabout comprising:

a substantially annular body including an inner surface, an outer surface, a first end region, and a second end region, wherein at least a portion of at least one of the inner surface and the outer surface is configured as a bearing surface oriented to face at least one of the piston element surface and the bore surface, and wherein a portion of the other surface of the inner surface and the outer surface is sized and configured to maintain circumferential contact with the other of the piston element surface and the bore surface;

wherein at least a portion of the first end region of the substantially annular body is configured to be biased laterally in a first direction into at least one recess formed in the piston element surface;

at least one sealing feature formed on the substantially annular body proximate to the at least a portion of the first end region and longitudinally spaced from the bearing surface, the at least one sealing feature being configured to be biased laterally into a laterally adjacent first recess of the at least one recess formed in the piston element surface in response to contact between the first sealing feature of the substantially annular body and the bore surface, the at least one sealing feature sized and configured to sealingly engage against the bore surface;

a second sealing feature, wherein at least a portion of the second end region of the substantially annular body is configured to be biased laterally into the second recess formed in the piston element surface in response to contact between the second sealing feature of the substantially annular body and the bore surface, the second sealing feature being

positioned proximate to the at least a portion of the second end region configured to be biased into the second recess; and

at least one depression formed in at least one of the outer surface and the inner surface of the substantially annular body, wherein at least a portion of the at least one depression is sized, located and configured to lie over the at least one recess to provide increased lateral flexure for the biasing of the at least a portion of the first end region into the at least one recess, the at least one depression positioned proximate to the at least one sealing feature, the at least one depression including a first depression and a second depression, each depression formed in the outer surface of the substantially annular body, wherein the first depression is positioned proximate to the first sealing feature and the second depression is positioned proximate to the second sealing feature.

2. (Previously presented) The sleeve element of claim 1, wherein the at least one sealing feature includes a surface protruding radially in a second direction, opposite the first direction, beyond a radial extent of the bearing surface.

3. (Original) The sleeve element of claim 1, wherein the substantially annular body comprises a material selected from the group consisting of polyamide, polytetrafluoroethelene (PTFE), acetal, polyethylene, and polyurethane.

4. (Original) The sleeve element of claim 1, wherein the substantially annular body is sized and configured to interferingly engage the piston element surface with the inner surface of the substantially annular body.

5. (Cancelled)

6. (Original) The sleeve element of claim 1, wherein the substantially annular body is formed of a material providing at least one of resilient elongation and resilient compression of about 2% or more.

7.-12. (Cancelled)

13. (Previously presented) The sleeve element of claim 1, wherein the substantially annular body is configured as a continuous ring.

14.-48. (Cancelled)

49. (Currently amended) A seal assembly for sealing between a piston element and a bore surface disposed thereabout comprising:

a piston element having a surface;

a sleeve element positioned between the piston element surface and a bore surface disposed thereabout, the sleeve element having an inner surface, an outer surface, a first end region, and a second end region, wherein the sleeve element is configured as a continuous substantially annular ring;

a first recess formed in the piston element surface; and

at least one depression formed in at least one of the outer surface and the inner surface of the sleeve element, at least a portion of the at least one depression being sized, located and configured to lie over the first recess;

wherein at least a portion of the first end region of the sleeve element is laterally adjacent to the first recess and configured to be biased laterally thereinto; and

a first energizer positioned generally within the first recess, the first energizer configured to contact at least a portion of the inner surface of the sleeve ~~element~~ element;

wherein the sleeve element includes a first sealing feature extending from the outer surface thereof, proximate to the at least a portion of the first end region configured to be biased laterally into the first recess, the first sealing feature configured to sealingly engage against the bore surface.

50. (Previously presented) The seal assembly of claim 49, wherein the sleeve element comprises a material selected from the group consisting of polyamide, polytetrafluoroethelene (PTFE), acetal, polyethylene, and polyurethane.

51.-53. (Cancelled)

54. (Original) The seal assembly of claim 49, wherein the sleeve element comprises a material providing at least one of resilient elongation and resilient compression of about 2% or more.

55. (Previously presented) The seal assembly of claim 49, wherein the inner surface of the sleeve element fits interferingly against the surface of the piston element.

56. (Previously presented) The seal assembly of claim 49, further comprising:

a first retention flange formed in the piston element surface and adjacent to the first end region of the sleeve element, the first retention flange exhibiting a lateral extent that exceeds a lateral extent of the inner surface of the sleeve element; and

a second retention flange formed in the piston element surface and adjacent to the second end region of the sleeve element, the second retention flange exhibiting a lateral extent that exceeds a lateral extent of the inner surface of the sleeve element.

57. (Previously presented) The seal assembly of claim 49,

wherein the at least a portion of the first end region of the sleeve element configured to be biased inwardly into the laterally adjacent first recess is configured to be biased in response to contact between the first sealing feature of the sleeve element and the bore surface.

58. (Previously presented) The seal assembly of claim 49, further comprising:

a second recess, wherein the second recess is formed in the piston element surface;

wherein at least a portion of the second end region of the sleeve element is laterally adjacent to the second recess and configured to be biased laterally thereinto;

wherein the sleeve element includes a second sealing feature proximate to the at least a portion of the second end region configured to be biased laterally into the second recess, the second sealing feature configured to sealingly engage against the bore surface.

59. (Previously presented) The seal assembly of claim 58, further comprising:

a first retention flange formed in the piston element surface and adjacent to the first end region of the sleeve element, the first retention flange exhibiting a lateral extent that exceeds a lateral extent of the inner surface of the sleeve element; and

a second retention flange formed in the piston element surface and adjacent to the second end region of the sleeve element, the second retention flange exhibiting a lateral extent that exceeds a lateral extent of the inner surface of the sleeve element.

60. (Previously presented) The seal assembly of claim 59,

wherein the at least a portion of the first end region of the sleeve element configured to be biased inwardly into the laterally adjacent first recess is configured to be biased in response to contact between the first sealing feature of the sleeve element and the bore surface, the first recess formed in the piston element surface; and

wherein the portion of the second end region of the sleeve element configured to be biased inwardly into the laterally adjacent second recess is configured to be biased in response to contact between the second sealing feature of the sleeve element and the bore surface, the second recess formed in the piston element surface.

61. (Cancelled)

62. (Previously presented) The seal assembly of claim 58, further comprising a second energizer positioned generally within the second recess, the second energizer configured to contact at least a portion of the inner surface of the sleeve element.

63. (Previously presented) The seal assembly of claim 62, wherein the first and second energizers each comprise a material selected from the group consisting of a thermoplastic elastomer and a thermoset elastomer.

64. (Previously presented) The seal assembly of claim 62, further comprising:
a pressure relief structure designed to allow pressurized fluid or gas acting on at least one of the inner surface and the outer surface of the sleeve element to move past at least one of the first and second energizers.

65. (Original) The seal assembly of claim 64, wherein at least the first recess and the first energizer are mutually sized and configured to allow flow about the first energizer when the first energizer occupies a first range of positions generally within the first recess and prevent flow thereabout when the first energizer occupies a second range of positions generally within the first recess.

66. (Previously presented) The seal assembly of claim 64, wherein the pressure relief structure comprises at least one protrusion or at least one groove formed on a surface of at least one of the first and second energizers.

67. (Original) The seal assembly of claim 49, further comprising a pressure equalizing structure configured to allow pressure communication between the inner surface of the sleeve element and the outer surface thereof.

68. (Original) The seal assembly of claim 67, wherein the pressure equalizing structure comprises at least one aperture extending between the inner surface of the sleeve element and the outer surface thereof.

69. (Original) The seal assembly of claim 58, wherein the sleeve element, the first recess, and the second recess are each sized and configured to promote a selected amount of deflection of the first end region of the sleeve element into the first recess and a selected amount of deflection of the second end region of the sleeve element into the second recess.

70.-90. (Cancelled)

91. (Previously presented) A method of forming a seal between a bore surface and a piston element surface, the method comprising:

providing a piston element having a surface;

providing a bore having a surface;

providing a sleeve element having an inner surface, an outer surface, an end region, and a sealing feature disposed generally within the end region;

providing a depression in at least one of the inner surface and the outer surface of the sleeve element;

providing a recess formed in one of the bore surface and the piston element surface;

disposing an energizer in the recess;

disposing the sleeve element between the piston element and the bore surface such that at least a majority of the sleeve element is external to the recess, wherein disposing the sleeve element between the piston element and the bore surface includes positioning at least a portion of the depression over the recess; and

biasing at least a portion of the end region of the sleeve element into the recess and contacting a surface of the at least a portion of the end region with the energizer.

92. (Cancelled)

93. (Original) The method of claim 91, wherein disposing the sleeve element between the piston element and the bore surface comprises compressing the sleeve element to reduce the size of an exterior surface thereof and disposing the sleeve element within the bore surface.

94. (Previously presented) The method of claim 91, wherein contacting a surface of the at least a portion of the end region with the energizer further includes resiliently supporting the at least a portion of the end region of the sleeve element generally opposite to biasing thereof into the recess.

95. (Cancelled)

96. (Cancelled)

97. (Original) The method of claim 91, further comprising selectively relieving pressure acting on at least one of the inner surface and the outer surface of the sleeve element.

98. (Original) The method of claim 91, further comprising equalizing a pressure acting on the inner surface of the sleeve element and a pressure acting on the outer surface of the sleeve element.

99. (Previously presented) The method of claim 91, wherein biasing at least a portion of the end region comprises biasing at least a portion of the end region into a recess formed in the piston element surface by sealingly engaging the bore surface against the sealing feature of the sleeve element.

100. (Previously presented) The method of claim 91, wherein biasing at least a portion of the end region comprises biasing at least a portion of the end region into a recess formed in the bore surface by sealingly engaging the piston element surface against the sealing feature of the sleeve element.

101. (Previously presented) A sleeve element for sealing between a piston element surface and a bore surface disposed thereabout comprising:

a substantially annular body including an inner surface, an outer surface, a first end region, and a second end region, the substantially annular body sized and configured to interferingly engage the piston element surface with the inner surface of the substantially annular body and maintain circumferential contact therebetween, wherein at least a portion of the outer surface is configured as a bearing surface;

wherein at least a portion of the first end region of the substantially annular body is configured to be biased laterally into at least one recess formed in the piston element surface;

at least one sealing feature formed on the substantially annular body proximate to the at least a portion of the first end region and longitudinally spaced from the bearing surface, the at least one sealing feature including a first sealing feature configured to be biased laterally into a laterally adjacent first recess of the at least one recess formed in the piston element surface in response to contact between the first sealing feature of the substantially annular body and the bore surface, the at least one sealing feature being sized and configured to sealingly engage against the bore surface; and

at least one depression formed in at least one of the outer surface and the inner surface of the substantially annular body, wherein at least a portion of the at least one depression is sized, located and configured to lie over the at least one recess to provide increased lateral flexure for the biasing of the at least a portion of the first end region into the at least one recess and wherein the at least one depression is longitudinally disposed between the at least one sealing feature and the bearing surface.

102. (Previously presented) The sleeve element of claim 101, wherein the at least one sealing feature includes a surface protruding radially beyond a radial extent of the bearing surface.

103. (Previously presented) The sleeve element of claim 101, wherein the substantially annular body comprises a material selected from the group consisting of polyamide, polytetrafluoroethelene (PTFE), acetal, polyethylene, and polyurethane.

104. (Previously presented) The sleeve element of claim 101, wherein the substantially annular body is formed of a material providing at least one of resilient elongation and resilient compression of about 2% or more.

105. (Cancelled)

106. (Previously presented) The sleeve element of claim 101, wherein:
the at least one sealing feature further comprises a second sealing feature;
at least a portion of the second end region of the substantially annular body is configured to be biased laterally into a laterally adjacent second recess formed in the piston element surface in response to contact between the second sealing feature of the substantially annular body and the bore surface; and
the second sealing feature is positioned proximate to the at least a portion of the second end region configured to be biased laterally into the second recess.

107. (Previously presented) The sleeve element of claim 106, wherein the at least one depression further comprises:
a first depression and a second depression, each depression formed in the outer surface of the substantially annular body;
wherein the first depression is positioned proximate to the first sealing feature and the second depression is positioned proximate to the second sealing feature.

108. (Previously presented) The sleeve element of claim 101, wherein the substantially annular member is configured as a continuous ring.

109. (Currently amended) A sleeve element for sealing between a piston element surface and a bore surface disposed thereabout comprising:

a substantially annular body including an inner surface, an outer surface, a first end region, and a second end region, wherein the substantially annular body is configured as a continuous ring, wherein at least a portion of at least one of the inner surface and the outer surface is configured as a bearing surface oriented to face at least one of the piston element surface and the bore surface, and wherein a portion of the other surface of the inner surface and the outer surface is sized and configured to maintain circumferential contact with the other of the piston element surface and the bore surface;

wherein at least a portion of the first end region of the substantially annular body is configured to be biased laterally in a first direction into at least one recess formed in one of the piston element surface and the bore surface;

at least one sealing feature formed on the substantially annular body proximate to the at least a portion of the first end region and longitudinally spaced from the bearing surface, the at least one sealing feature including a first sealing feature configured to be biased laterally into a laterally adjacent first recess of the at least one recess formed in the piston element surface in response to contact between the first sealing feature of the substantially annular body and the bore ~~surface.,~~ surface, the at least one sealing feature sized and configured to sealingly engage against the same surface that the bearing surface is oriented to face; and

at least one depression formed in at least one of the outer surface and the inner surface of the substantially annular body, wherein at least a portion of the at least one depression is sized, located and configured to lie over the at least one recess to provide increased lateral flexure for the biasing of the at least a portion of the first end region into the at least one recess.

110. (Previously presented) The sleeve element of claim 109, wherein at least one sealing feature includes a surface protruding radially in a second direction, opposite the first direction, beyond a radial extent of the bearing surface.

111. (Previously presented) The sleeve element of claim 109, wherein the substantially annular body comprises a material selected from the group consisting of polyamide, polytetrafluoroethelene (PTFE), acetal, polyethylene, and polyurethane.

112. (Previously presented) The sleeve element of claim 109, wherein the substantially annular body is formed of a material providing at least one of resilient elongation and resilient compression of about 2% or more.

113. (Cancelled)

114. (Previously presented) A seal assembly for sealing between a piston element and a bore surface disposed thereabout comprising:

a piston element having a surface;

a sleeve element positioned between the piston element surface and a bore surface disposed thereabout, the sleeve element having an inner surface, an outer surface, a first end region, and a second end region;

a first recess formed in the piston element surface; and

at least one depression formed in at least one of the outer surface and the inner surface of the sleeve element, at least a portion of the at least one depression being sized, located and configured to lie over the first recess;

wherein at least a portion of the first end region of the sleeve element is laterally adjacent to the first recess and configured to be biased laterally thereinto;

wherein the sleeve element includes a first sealing feature extending from the outer surface thereof, proximate to the at least a portion of the first end region configured to be biased laterally into the first recess, the first sealing feature configured to sealingly engage against the bore surface;

a second recess, wherein the second recess is formed in the piston element surface;

wherein at least a portion of the second end region of the sleeve element is laterally adjacent to the second recess and configured to be biased laterally thereinto;

wherein the sleeve element includes a second sealing feature proximate to the at least a portion of the second end region configured to be biased laterally into the second recess, the second sealing feature configured to sealingly engage against the bore surface;

a first energizer positioned generally within the first recess, the first energizer configured to contact at least a portion of the inner surface of the sleeve element; and

a second energizer positioned generally within the second recess, the second energizer configured to contact at least a portion of the inner surface of the sleeve element.

115. (Previously presented) The seal assembly of claim 114, wherein the sleeve element comprises a material selected from the group consisting of polyamide, polytetrafluoroethelene (PTFE), acetal, polyethylene, and polyurethane.

116. (Previously presented) The seal assembly of claim 114, wherein at least a portion of the outer surface of the sleeve element is configured as a bearing surface.

117. (Previously presented) The seal assembly of claim 116, wherein the bearing surface of the sleeve element is sized and configured to conformally engage the bore surface.

118. (Previously presented) The seal assembly of claim 114, wherein the sleeve element comprises a material providing at least one of resilient elongation and resilient compression of about 2% or more.

119. (Previously presented) The seal assembly of claim 114, wherein the inner surface of the sleeve element fits interferingly against the surface of the piston element.

120. (Previously presented) The seal assembly of claim 114, further comprising:

a first retention flange formed in the piston element surface and adjacent to the first end region of the sleeve element, the first retention flange exhibiting a lateral extent that exceeds a lateral extent of the inner surface of the sleeve element; and

a second retention flange formed in the piston element surface and adjacent to the second end region of the sleeve element, the second retention flange exhibiting a lateral extent that exceeds a lateral extent of the inner surface of the sleeve element.

121. (Previously presented) The seal assembly of claim 114,

wherein the at least a portion of the first end region of the sleeve element configured to be biased inwardly into the laterally adjacent first recess is configured to be biased in response to contact between the first sealing feature of the sleeve element and the bore surface.

122. (Previously presented) The seal assembly of claim 114,

wherein the at least a portion of the first end region of the sleeve element configured to be biased inwardly into the laterally adjacent first recess is configured to be biased in response to contact between the first sealing feature of the sleeve element and the bore surface; and

wherein the portion of the second end region of the sleeve element configured to be biased inwardly into the laterally adjacent second recess is configured to be biased in response to contact between the second sealing feature of the sleeve element and the bore surface.

123. (Previously presented) The seal assembly of claim 114, further comprising:

a third recess formed in the piston element surface, the third recess disposed axially between the first and second recesses; and

an energizer positioned generally within the third recess, the energizer configured to contact the inner surface of the sleeve element.

124. (Previously presented) The seal assembly of claim 114, wherein the first and second energizers each comprise a material selected from the group consisting of a thermoplastic elastomer and a thermoset elastomer.

125. (Previously presented) The seal assembly of claim 114, further comprising:

a pressure relief structure designed to allow pressurized fluid or gas acting on at least one of the inner surface and the outer surface of the sleeve element to move past at least one of the first and second energizers.

126. (Previously presented) The seal assembly of claim 125, wherein at least the first recess and the first energizer are mutually sized and configured to allow flow about the first energizer when the first energizer occupies a first range of positions generally within the first recess and prevent flow thereabout when the first energizer occupies a second range of positions generally within the first recess.

127. (Previously presented) The seal assembly of claim 125, wherein the pressure relief structure comprises at least one protrusion or at least one groove formed on a surface of at least one of the first and second energizers.

128. (Previously presented) The seal assembly of claim 114, further comprising a pressure equalizing structure configured to allow pressure communication between the inner surface of the sleeve element and the outer surface thereof.

129. (Previously presented) The seal assembly of claim 128, wherein the pressure equalizing structure comprises at least one aperture extending between the inner surface of the sleeve element and the outer surface thereof.

130. (Previously presented) The seal assembly of claim 114, wherein the sleeve element, the first recess, and the second recess are each sized and configured to promote a selected amount of deflection of the first end region of the sleeve element into the first recess and a selected amount of deflection of the second end region of the sleeve element into the second recess.